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UNITED STATES DEPARTMENT OF COMMERCE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/437,370 11/10/99 OCHIKAZAWA

Y RCA-89-936

MM91/1016

EXAMINER

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PATENT OPERATIONS
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CHANG, A

ART UNIT

PAPER NUMBER

2872

DATE MAILED:

10/16/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)
	09/437,370	CCHIKAZAWA, YOSHIHARU
	Examiner	Art Unit
	Audrey Y. Chang	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 09 August 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-16 is/are pending in the application.

 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-16 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

 a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 9, 2001 has been entered.
2. This Office Action is also in response to applicant's preliminary amendment filed on August 9, 2001, which has been entered as paper number 8.
3. By this amendment, applicant has amended claims 1, 3 and 14. Claims 1-16 remain pending in this application. Applicant is respectfully noted the marked-up copy attached with the amendment is poorly written and lack of professional standard. There are a lot of discrepancies between the clean copy and the marked-up copy of the amendment.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 3, 9 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "the light sources are positioned at the focal point of the mirror means" recited in claim 3 appears to be wrong and confusing since it is not clear how to position more than one light sources at a single point.

The term "paraboloid" recited in claim 9 is not properly written in term of English. Correction is required.

The phrase “the optical means comprises one single light source and the optical means comprising mirror means including movable mirror elements” recited in claim 14 appears to be vague and indefinite since it is not clear if the optical means is comprised either of single light source or of mirror means, or both. The specification fails to give the support for the optical means to be single light source.

Clarification is still required.

The phrase “the minor element” and the phrase “the minor elements” recited in claim 14 appear to be vague and indefinite since they each lacks a proper antecedent basis from earlier part of the claim. Also it is not clear what is a “minor element” or “minor elements”.

Claims 15-16 inherit the rejections from their respective basis claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2, 4-5, 10, and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Eichenlaub (PN. 5,311,220).

Eichenlaub teaches an autostereoscopic display that is comprised of:

(a), a *transmissive light valve display* (2), serves as the *transmissive image reproducing element*,

(b), a *light illumination panel* (1) serves as the *light source means*, that is comprised of a light source (8) and another light source (9),

(c), a *Fresnel mirror* (17) serves as the *optical means* to direct the light from the light source (8) and from the another light source (9) to different viewing zones, (43 and 44 in Figure 1 or 20 and 21 in Figure 2), and

(d), means to cause the light sources (8 and 9) to be turned on and off sequentially and means to cause the image on the transmissive light valve display to be changed in synchronization with the on and off of the light sources, (please see Figures 1 and 9 and column 2, lines 40-64).

In order for this display to provide autostereoscopic display, the image sequentially and alternatively displayed on the light valve display must be a perspective image for the left eye and for the right eye respectively and the viewing zones (44 and 43 or 21 and 20) are the left eye and right eye positions of an observer, (please see columns 3-4). As shown in Figure 9, Eichenlaub teaches that the light illumination panel (1) and the transmissive light valve (2) are installed on the same side as respect to Fresnel mirror (17) such that the light is directed to the Fresnel mirror and then to the light valve to produce autostereoscopic image to the observer (26).

With regard to claim 2, Eichenlaub teaches that the Fresnel mirror is a focusing mirror that is of a convergent type.

With regard to claims 10, Eichenlaub teaches that the light illumination panel may comprise a plurality of light emitting *lines*, which implicitly are elongated in one direction.

With regard to claim 12, Eichenlaub teaches that the transmissive light valve may be a liquid crystal display, (please see column 3 lines 20-25).

With regard to claim 13, it is implicitly true that the image for the left eye perspective and image for the right eye perspective are formed in an alternative field of frame to provide alternative display of these images.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3, 6-9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Eichenlaub.

The autostereoscopic image display taught by Eichenlaub as described in claim 1 above has met all the limitations of the claims. Eichenlaub teaches to use a Fresnel mirror (17 in Figure 9) as the optical means to direct the light from the light source (8) and the another light source (9) on a light illumination panel to different viewing positions (43 and 44 or 20 and 21), which correspond to viewer's right and left eye positions, respectively. This reference however does not teach explicitly that the Fresnel mirror comprises a first and a second mirror elements, forming alternative succession or forming strips elongated in one direction, to achieve the function of directing light to left eye and right eye positions respectively as stated above. These features are either inherently met by the Fresnel mirror of Eichenlaub or obvious modifications to one skilled in the art since Fresnel mirror having various shapes of mirror fringes are rather well known in the art. Furthermore, the specification fails to teach having these particular arrangements would overcome any problem in the prior art and since the Fresnel mirror of Eichenlaub achieves the same function as in the instant application such modifications are therefore considered as obvious matters of design choices to one skilled in the art.

With regard to claim 3, this reference does not teach explicitly that the light sources are placed at focal points of the mirror means to provide parallel light. However it is a well-known fact in the Optics art that parallel light will be produced from a mirror if a light source is putted at the focal point of the

mirror. It is also known in the art that the best image reproducing quality of the display means will be provided if the display means is illuminated with collimated or parallel light. It would then have been obvious to one skilled in the art to modify the autostereoscopic display of Eichenlaub to place the light source at the focal positions of the Fresnel mirror for the benefit of producing good stereoscopic image quality.

With regard to claim 9, this reference also does not teach explicitly that the mirror means may also be a cylindrical mirror or an ellipsoid paraboloid mirror. However since the specification fail to teach the criticalities of having these mirrors would overcome any problem in the prior art such modifications are considered as obvious matter of design choices to one skilled in the art.

With regard to claim 11, Eichenlaub teaches that the light valve (2) assumes rectangular shape but it does not teach explicitly that the light sources are placed along the sides of the light valve. However such arrangement, which is known in the art as edge-illumination is quite well known in the art to modify it requires merely rearranging parts of an invention and it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Allowable Subject Matter

10. Claim 14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
11. Claims 15-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
12. The following is a statement of reasons for the indication of allowable subject matter: Of the prior art references considered none has disclosed a stereoscopic display device that is comprised of a single light source and a mirror means including movable mirror elements associated with a mirror control means such that each of the mirror elements may be oriented, by the control of the mirror control

means, to a first and a second position such that at first position the mirror elements direct light to right eye when a right eye image is displayed on an image reproducing means and at the second position the mirror elements direct light to left eye when a left eye image is displayed on the image reproducing means.

Response to Arguments

13. Applicant's arguments with respect to claims 1 and 14 have been considered but are moot in view of the new ground(s) of rejection.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.
October 12, 2001

